APPARATUS AND METHODS FOR ENSURING ALIGNMENT OF CONNECTORS TO A PRINTED CIRCUIT BOARD

ABSTRACT OF THE DISCLOSURE

The present invention relates to apparatus and methods that proactively ensure alignment (parallelism) of the connectors on the circuit board during the solder assembly of the connectors to the circuit board. The apparatus and methods include an alignment fixture that has been specifically designed to ensure parallelism of straddle-mounted connectors during the solder reflow assembly process. The fixture has connector slots and a circuit board slot. The slots help to detect whether the connectors meet the X- and Y-axis alignment requirements after the insertion process (after the connectors have been placed onto the circuit board). That is, if the X- and Y-axis alignment specifications are met, the circuit board with its attached connectors can be completely fitted into the slots of the alignment fixture. The fixture also contains a claw to control unintended connector displacements in the Z-axis, which may be caused by a circuit board warping under high temperature during the reflow process (the process to solder the connectors onto the circuit board). Thus, this proactive approach for ensuring connectors alignment to the circuit board reduces yield loss (and the number of reactive circuit board inspections); as a result, manufacturing costs are reduced.